in use; or they may be perforated for the purpose of ventilation. If nicked with a sharp-pointed hammer, they will break off at any desired line; and the angles may be taken off with a trowel as readily as those of a common brick.

The bricks for the quoins and jambs may be made either solid or perforated; and with perpendicular holes, either circular, square, or octagonal, those in the quoins may be so arranged as to serve for ventilating shafts. Stone will be found equally applicable for the quoins and jambs, and the appearance of the work be thereby improved. Hollow bricks may be made, with any good tile machine, in the same manner as ordinary draining pipes, and at about the same cost in proportion to the quantity of clay contained in them. They are more compressed, require less drying, and with much less fuel are better burned than ordinary bricks, even when waste heat, or that in the upper part of the kiln, only is used.

The saving in brickwork effected by the use of the patent bricks, when made at a fair price, is said to be from 25 to 30 per cent. on their cost, with a reduction of 25 per cent. on the quantity of mortar, and a similar saving on the labour, when done by accustomed workmen. The process of drying is much more rapid than in common brickwork, and the smoothness of the internal surface of walls built with the patent bonded bricks renders plastering, in many instances, quite unnecessary, whereby a further saving is effected not only in the first cost, but also in the subsequent maintenance. If glazed on the outer face, as may be done with many clays, a superior finished surface is obtainable without plaster.

THE ARCHITECTS' BENEVOLENT SOCIETY.

We have before now urged upon our readers the claims of this association on their support.

Such a society, carefully framed and frugally administered, should especially recommend itself to the favour and support of those whom the successful pursuit of their profession has enabled to afford their sympathy and their brotherly assistance to less favoured fellow-labourers in the same field. Even to those whose pecuniary means are moderate, it will be a source of satisfaction to know and feel that by an annual sacrifice, so small as scarcely to be inconvenient to them, they may supply the means of dispensing most valuable and effectual relief.

Literary men, artists, and many other classes and professions, dependent for their livelihood on profits of uncertain attainment and precarious tenure, have formed themselves into societies of this nature with the happiest results; but Architecture, the eldest sister of the Fine Arts, has yet to be moved to associate in this good work. She has had the good fortune to be made subservient, in many noble monuments of piety and charity, to the benevolence of others: it is time that she should give proofs, in her corporate character, of the same beneficent spirit. No society, framed on these principles and specially devoted to the interests of the architectural profession, had been established; and it was in order to remove this reproach that the present society has been formed. It needs only a slight acquaintance with the profession to satisfy us that such an institution is urgently required. The frequency of private applications for individual relief too certainly proves its necessity, and the sad experience, which brings too often under our notice the struggles of genius and talent with undeserved misfortune, forces upon us the necessity of soliciting the co-operation of the profession.

It is proposed to found the Architects' Benevolent Society on the most liberal basis. Although a preference seems to be due to those who have contributed to the funds of the society, it is not proposed to incorporate into its regulations any such indispensable condition of assistance. A case of real distress, combined with a fair moral character, is to be the sole recommendation.

In the mode of administering relief, and of inquiring into the merits of each application, no needless exposure of the name or circumstances of the applicant will be permitted. A limited number of members, forming a council of management, chosen by the great body of subscribers, will be charged with the duty of conducting such inquiries.

The amount and character of the relief to be administered must, of course, depend on the means placed at the disposal of the society. That such means may be large and liberal is our earnest hope and sanguine expectation.

Although it is on the architectural profession throughout England that the establishment and success of such a society must mainly depend, we are not without a hope that it will find friends in other quarters. Architecture, ancient and modern, has lately attracted a very remarkable degree of attention and interest among the lovers of art for its own sake, who have prosecuted the study of it, of its history, of its development, and its varied features, with a zeal that has needed not the stimulus of professional endowment.* Earnestly we plead the cause of this infant institution.

"Except the Lord build the house, their labour is but lost that build it."

THE LATE FATAL ACCIDENT IN GRACECHURCH-STREET.

CAST-IRON IN CONSTRUCTION.

HAVING had considerable experience in smelting and the manufacture of iron in all its branches—both wrought and cast-iron—I beg, as an impartial man, to offer the benefit of my experience, and to direct attention to facts of which I was an eye-witness, and which induce my opinion that it is impossible to place reliance upon the testing of cast-iron. What is found sufficient under one set of circumstances, is totally inadequate in others. It is affected by so many causes, frequently of the most subtle description, and is liable to so many imperceptible faults as to render it unfit to be depended upon for the strength of buildings, though a good material for many purposes—especially of light and ornamental character—when judiciously used. In casting very large and solid masses, it is impossible to get the metal into the mould exactly at the same instant all over, and consequently to preserve an equality of temperature in all parts during the process of cooling.

Now, as regards what I have witnessed, and my opinion as to what might probably be the cause of the accident in Gracechurch-street: I managed the Clee Hill Ironworks for a number of years, in the course of which time we had many heavy castings to provide for the use of our new works. Amongst these was a roll-bed of great weight and strength, in the form of a large picture-frame. I cannot state its exact weight: it was from 9 inches to 1 foot wide, and from 7 to 9 inches deep or thick outside, with a bevel inside like a picture frame.

The component parts of this casting were—equal parts of Old Park, Lylleshall, and Clee Hill pigs—with two or three charcoal tough pigs—which was our custom. This casting was a great weight, about the substance described: it was cast about the mouth of October: it lay in the hot sand three or four days to cool: it was then taken out and dressed, and was an excellent casting: it was removed about 100 yards from the forge-doors: it remained there for three weeks and a day, or three weeks all but a day, I cannot say which, when I saw three gentlemen sitting upon it—a light warm shower of rain drove them away. In about half an hour afterwards I was in the same place again, and hearing a great report like a cannon, my eye caught a large portion of the casting in question leaping, or as if hurled away a distance of four or five feet from the other part. One of the angles was completely removed, so that two sides were broken at the same instant. When examined not the least flaw or crack could be discerned, but, on the contrary, the edges which had burst asunder were clear and clean, and the iron was of as good a grey quality as a man could desire to see. It was broken from some unknown powerful action, some chemical process aided by air and moisture, inducing contraction or expansion.*

The accident was so unaccountable by ordinary causes, that had I not witnessed it as I did, we should have offered a reward, under the conviction that it must have been broken maliciously.

It is worthy of remark, that this cast had no flaw whatever in it; and I have known many instances of castings in which flaws were visible enduring test, and proving stronger than others of the same form and weight which were altogether free from apparent blemish.

I slightly examined the broken girder at the inquest in the City, and am disposed to think, that when the wet concrete was put on, an effect somewhat similar to the shower of rain in the instance referred to, might have produced the unfortunate result, without reference to the weight put upon it, since what happens in one instance may occur in others, and, as I conceive, is liable to all, more or less, according to the quality of the iron, and the circumstances attending its use.

The above facts clearly prove that testing cast iron, in the way so much talked of, is not to be relied upon. JOSEPH GEORGE.

Another correspondent says,—"I feel assured that the accident resulted from the operation of ballasting or concreting the roof, and which was effected by hoisting the concrete in barrows, and wheeling over the slight girders thus creating vibrative action, each loaded transit not only shook every joint of the *green brickwork*, but had the tendency to act wedge-like, at each deflection, which, added to the expansion of the concrete, no doubt snapped suddenly one or more of these slight girders, thereby their ends acting as levers in the brickwork, prising the whole of it inwards in the direction shown by its fall." H. H. R.

* The following are the rules of the society:—

1. That the object of the society be limited strictly to benefit those engaged professionally in all branches connected with architecture, excluding only such as have in any way been engaged in, or are deriving emolument from the executive department.

2. Annual subscribers of one guinea, or donors of ten guineas in one donation, to be members, whether professional or otherwise, and will be entitled to vote and take part in the proceedings at the general meetings, and in the election of officers and council.

3. The president, treasurer, and honorary secretary, to be elected annually by the general body of the subscribers at the annual general meeting, and to be *ex officio* members of the council.

4. The trustees to be elected by the members of the society at their first general meeting, and to be *ex officio* members of the council.

5. The council to consist of not more than fifteen, nor less than twelve members, exclusive of the president, treasurer, trustees, and honorary secretary, and to be elected at the annual general meeting, one-third of whom are to go out in rotation, but are eligible for re-election.

6. The council to be empowered to appoint the assistant secretary, and such other officers as they may find necessary for the efficient working of the society, and to fix their salaries and remunerations.

7. The council to inquire into the qualifications and merits of the applicants for relief, being guided therein by the rules and bye-laws of the society, and to regulate and control generally the affairs of the society.

8. The qualification of a candidate for relief shall be the attested fact that he has been duly educated in an architect's or surveyor's office, or that he has produced any valuable invention or any work of art, useful to the profession.

9. Subscribers to the society to have in all cases a preferable claim to relief.

10. Two auditors to be appointed at the annual general meeting. A detailed statement of the accounts, when audited, to be delivered annually to every member.

11. An annual general meeting of the society shall be held on the second Wednesday in March, for the purpose of receiving a report from the council; for the election of officers; and for the general purposes of the society.

* We have seen vessels of cast-glass split in much the same way, without any observable change even of temperature at the moment.

To learn about OCR and PDF Compression go to our website